

Reply to Office Action dated May 4, 2009

REMARKS

Claims 1, 4-7, 9-11, 13-20, 22-24, 28, 29, 31-36, 39, 41, 44-47 and 50 are pending in the application. By this Amendment, claims 1, 4, 9-11, 14, 24, 29, 31, 32, 34, 35, 39, 41, 44, 47 and 50 are amended and claims 30, 40, 42, 43, 48 and 49 are canceled without prejudice or disclaimer. Various amendments are made for clarity and are unrelated to issues of patentability.

The Office Action rejects claims 42-43 and 49 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. Each of claims 42-43 and 49 is deleted. Thus, the rejection under 35 U.S.C. §112 is moot.

The Office Action rejects claims 14, 16-18, 21-23 and 39-46 under 35 U.S.C. §102(b) by U.S. Patent 5,835,641 to Sotoda et al. (hereafter Sotoda). The Office Action also rejects claims 1, 4-7, 9-11, 13, 15, 19-20, 24 and 28-36 under 35 U.S.C. §103(a) over Sotoda in view of U.S. Patent Publication 2002/0122121 to Fujii et al. (hereafter Fujii). Still further, the Office Action rejects claims 47-50 under 35 U.S.C. §103(a) over Sotoda in view of newly-cited U.S. Patent Publication 2002/0013161 to Schaeffer et al. (hereafter Schaeffer). The rejections are respectfully traversed with respect to the pending claims.

Independent claim 1 recites searching a center search line of a photographic screen, wherein the center search line comprises a horizontal axis at an approximate center of the photographic screen, searching each of a plurality of upper search lines from the center search line, searching each of a plurality of lower search lines from the center search line, and extracting a color average value and a deviation of a photographic object within the photographic screen for each of the plurality of upper search lines and the plurality of lower search lines. Independent

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claim 1 also recites determining a size of photographic object based on the extracted color average value and the extracted deviation for each of the plurality of upper search lines and the plurality of lower search lines, wherein determining the size of the photographic object includes determining a number of pixels that exist within a range of a certain deviation from an average value of a specific color and determining an area of the photographic object based on the determined number of pixels. Still further, independent claim 1 recites setting a zoom ratio by comparing the determined size of the photographic object with a reference value or with a preset size.

The applied references do not teach or suggest at least these features of independent claim 1. More specifically, Sotoda does not teach or suggest determining a size of photographic object based on the extracted color average value and the extracted deviation for each of the plurality of upper search lines and the plurality of lower search lines, wherein determining the size of the photographic object includes determining a number of pixels that exist within a range of a certain deviation from an average value of a specific color and determining an area of the photographic object based on the determined number of pixels.

The Office Action (on page 3) states that Sotoda teaches that a size of an object is taken into account using the same signal based indirectly on the color average value and deviation signal. The Office Action cites various features from FIGs. 12(a), 12(b), FIG. 15 and FIG. 34 as well as col. 7, line 17 et. seq. However, this does not suggest determining a number of pixels that exist within a range of a certain deviation from an average value of a specific color and determining an area of the photographic object based on the determined number of pixels.

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Sotoda does not discuss determining a number of pixels and/or determining an area based on a determined number of pixels. Sotoda's col. 7 merely states that zoom control means for controlling the optical zoom means and the electronic zoom means from the information on the position and size of the object. However, Sotoda does not suggest determining a number of pixels and/or determining an area based on the determined number of pixels.

The Office Action (on at least pages 11, 12 and 23) cites Sotoda as teaching means for recognizing an object and as teaching size. However, the cited section does not suggest the claimed determining a number of pixels that exist within a range of a certain deviation from an average value of a specific color and determining an area of the photographic object based on the determined number of pixels. The mere disclosure of "size" does not suggest the claimed features related to a determined number of pixels.

For at least these reasons as set forth above, Sotoda and Fujii do not teach or suggest all the features of independent claim 1. Schaeffer does not teach or suggest the missing features of independent claim 1. Thus, independent claim 1 defines patentable subject matter.

Independent claim 14 recites searching a plurality of lines of a photographic screen by alternatively searching lines with a pre-determined gap up or down one line by one line, and for each of the plurality of lines, extracting a color average value and a deviation of a photographic object on the photographic screen. Independent claim 14 also recites determining a size of a photographic object based on the extracted color average value and the extracted deviation for each of the plurality of lines, wherein determining the size of the photographic object includes determining a number of pixels that exist within a range of a certain deviation from an average

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value of a particular color and determining an area of the photographic object based on the determined number of pixels. Independent claim 14 also recites determining a zoom ratio by comparing the determined size of the photographic object and a reference value, and applying the determined zoom ratio to the photographic object.

For at least similar reasons as set forth above, Sotoda and Fujii do not teach or suggest at least these features of independent claim 14. More specifically, Sotoda, Fujii and Schaeffer do not teach or suggest determining a size of a photographic object based on the extracted color average value and the extracted deviation for each of the plurality of lines, wherein determining the size of the photographic object includes determining a number of pixels that exist within a range of a certain deviation from an average value of a particular color and determining an area of the photographic object based on the determined number of pixels. Thus, independent claim 14 defines patentable subject matter.

Independent claim 24 recites searching a center search line of a photographic screen to detect a photographic object, wherein the center search line is approximately at a center of the photographic screen, searching a plurality of upper search lines of the center search line to extract an average value and a deviation of a skin color of the photographic object for each of the upper search lines, and searching a plurality of lower search lines of the center search line to extract an average value and a deviation of a skin color of the photographic object for each of the lower search lines. Independent claim 24 also recites determining a size of a face region based on the extracted average value and the extracted deviation of the skin color each of for the plurality of upper search lines and based on the extracted average value and the extracted

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deviation of the skin color for each of the plurality of lower search lines, wherein determining the size of the face region includes determining a number of pixels that exist within a range of a certain deviation from an average value of a skin color and determining an area of the face region based on the determined number of pixels. Independent claim 24 also recites comparing the determined size of the face region with a reference value, calculating a zoom ratio based on the comparing, and applying the calculated zoom ratio to the photographic screen.

For at least similar reasons as set forth above, Sotoda and Fujii do not teach or suggest at least these features of independent claim 24. More specifically, Sotoda, Fujii and Schaeffer do not teach or suggest determining a size of a face region based on the extracted average value and the extracted deviation of the skin color for each of the plurality of upper search lines and based on the extracted average value and the extracted deviation of the skin color for each of the plurality of lower search lines, wherein determining the size of the face region includes determining a number of pixels that exist within a range of a certain deviation from an average value of a skin color and determining an area of the face region based on the determined number of pixels. Thus, independent claim 24 defines patentable subject matter.

Independent claim 35 recites searching a center search line of a photographic screen to detect text, determining an average value of a stroke thickness of the text by searching a plurality of upper search lines and a plurality of lower search lines of the photographic screen, and determining a size of the text based on the determined average value of the stroke thickness of the text. Independent claim 35 also recites comparing the determined size of the text with a

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reference value, calculating a zoom ratio based on the comparing, and applying the calculated zoom ratio to the photographic screen.

For at least similar reasons as set forth above, Sotoda and Fujii do not teach or suggest at least these features of independent claim 35. More specifically, Sotoda does not teach or suggest determining an average value of a stroke thickness of the text by searching a plurality of upper search lines and a plurality of lower search lines of the photographic screen, and determining a size of the text based on the determined average value of the stroke thickness of the text. Additionally, Sotoda does not teach or suggest comparing the determined size of the text with a reference value, calculating a zoom ratio based on the comparing and applying the calculated zoom ratio to the photographic screen. Sotoda also does not relate to detecting text, an average value of a stroke thickness of text, and/or a size of text. The Office Action (on page 6) states that Sotoda teaches determining a size of an object region. However, this does not suggest determining an average value of a stroke thickness. The Office Action cites various sections of Sotoda on page 27. There is no discussion in Sotoda of determining an average value of a stroke thickness. Thus, independent claim 35 defines patentable subject matter.

Independent claim 39 recites determining which one of at least two modes has been selectively set in the digital camera, wherein the at least two modes includes a first mode and a second mode, the first mode to zoom-process at least one photographic object in a different manner from the second mode. Independent claim 39 also recites recognizing the at least one photographic object included in a photographic image based on the set mode, wherein the recognizing includes detecting a region corresponding to the at least one photographic object

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and calculating a size of the region based on a determined number of pixels occupied by the at least one photographic object. Independent claim 39 also recites zooming the photographic image based on the calculated size of the region.

The applied references do not teach or suggest all the features of independent claim 39. More specifically, Sotoda, Fujii and Schaeffer do not teach or suggest recognizing the at least one photographic object included in a photographic image based on the set mode, wherein the recognizing includes detecting a region corresponding to the at least one photographic object and calculating a size of the region based on a determined number of pixels occupied by the at least one photographic object. Sotoda does not suggest a determined number of pixels occupied by the at least one photographic object. Independent claim 39 therefore defines patentable subject matter.

Independent claim 47 recites the digital camera having a zoom function, wherein the zoom function has at least two modes including a first mode and a second mode, the first mode to zoom-process at least one photographic object in a different manner from the second mode, a controller to control the wireless communication module and the digital camera, and a display screen to display information received via the wireless communication module and a photographic image captured by the digital camera under control of the controller. Independent claim 47 also recites that the controller comprises at least one algorithm to: determine which one of the at least two modes has been selectively set in the digital camera, recognize the at least one photographic object included in a photographic image based on said set mode, wherein to recognize the at least one photographic object includes detecting a region corresponding to the

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at least one photographic object and determining a size of the region based on a determined number of pixels occupied by the at least one photographic object. The algorithm further to zoom the photographic image based on the calculated size of the region, and display the zoomed photographic image on the display screen.

The applied references do not teach or suggest at least these features of independent claim 47. More specifically, Sotoda, Fujii and Schaeffer do not teach or suggest to recognize the at least one photographic object included in a photographic image based on said set mode, wherein to recognize the at least one photographic object includes detecting a region corresponding to the at least one photographic object and determining a size of the region based on a determined number of pixels occupied by the at least one photographic object. Thus, independent claim 47 defines patentable subject matter.

For at least the reasons set forth above, each of independent claims 1, 14, 24, 35, 39 and 47 defines patentable subject matter. Each of the dependent claims depends from one of the independent claims and therefore defines patentable subject matter at least for this reason. In addition, the dependent claims recite features that further and independently distinguish over the applied references.

For example, dependent claim 34 recites various features related to a plurality of skin colors being more than a certain length exists along a center search line, and extracting an average value and a deviation of a skin color for each photographic object that is determined to be a face. The Office Action (on page 24-26) cites various sections of Sotoda. However, the cited sections do not suggest a plurality of skin colors, a certain length existing along a center

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search line and/or extracting...for each photographic object that is determined to be a face. The other applied references do not teach or suggest the missing features. Thus, dependent claim 34 defines patentable subject matter at least for this additional reason.

CONCLUSION

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and prompt allowance of claims 1, 4-7, 9-11, 13-20, 22-24, 28-29, 31-36, 39, 41, 44-47 and 50 are earnestly solicited. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
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